

ATTACHMENT - CLAIMS LISTING

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-16. (canceled).

17. (currently amended) A stress measuring device ~~for measuring a stress in a specimen~~ comprising:

an electron beam irradiating unit that irradiates a specimen with an electron beam,
a spectroscopy unit operatively configured in association with the electron beam irradiating unit that analyzes light generated only from the specimen when the specimen is irradiated with by the electron beam irradiated from the electron beam irradiating unit hitting the specimen so as to obtain a spectrum ~~of the generated light from the specimen~~, and

a stress calculating unit operatively configured in association with the spectroscopy unit and the electron beam irradiating unit that calculates, when the specimen is irradiated only with the electron beam from the electron beam irradiating unit, a stress change generated in the specimen based on a spectrum shift of between the spectrum of the generated light obtained as the specimen is irradiated with the electron beam from the irradiating unit when the specimen is in a predetermined state and the spectrum of the generated light obtained when the specimen is in a state different from the predetermined state.

18. (previously presented) The stress measuring device as claimed in claim 17, wherein the stress calculating unit calculates a residual stress where the predetermined state is that where there is no stress in the specimen and the different state is that where there is a residual stress in the specimen.

19. (previously presented) The stress measuring device as claimed in claim 17, further including an external force impressing unit that applies an external force to the specimen which is measured by stress calculating unit.

20. (previously presented) The stress measuring device as claimed in claim 19, wherein the stress calculating unit obtains an internal stress from a spectrum shift between an internal stress

impressed spectrum in a state that the internal stress is generated in the specimen by the external stress impressing unit and the specimen spectrum or the stress impressed spectrum.

21. (canceled)

22. (previously presented) The stress measuring device as claimed in claim 17, further including a composition analyzing unit that analyses a partial difference of composition of the specimen at a measurement site before stress is applied so that the stress calculating unit calculates stress based on the partial difference of composition at the measurement site.

23. (previously presented) The stress measuring device as claimed in claim 17, further including an external light irradiating unit that irradiates external light whose spectrum is known.

24. (previously presented) The stress measuring device as claimed in claim 17, further including a visualizing unit that visualizes a portion to be measured of the specimen so that the portion can be accurately measured again.

25. (previously presented) The stress measuring device as claimed in claim 17, wherein a diameter of a beam spot of the electron beam irradiated by the electron beam irradiating unit is not more than 100 nm.

26. (previously presented) The stress measuring device as claimed in claim 17, wherein the electron beam irradiating unit is a scanning electron microscope.

27-43. (canceled)

44. (currently amended) A system for measuring stress in a specimen with an electron beam comprising:

an electron beam irradiating unit that irradiates the specimen with an electron beam;

a measuring unit operatively configured in association with the electron beam irradiating unit that provides measurement signals of generated radiation from the specimen obtained, after irradiation with the electron beam from the irradiating unit, by only the electron beam radiation; and

a calculating unit operatively configured in association with the measuring unit and the electron beam irradiating unit that calculates a stress on the specimen from the measurement signals by determining a spectrum shift between a first spectrum of the generated radiation from the specimen when the specimen is in a predetermined reference state and a second spectrum of the generated radiation from the specimen measured at a predetermined measurement position on the specimen.

45. (currently amended) The system as claimed in claim 44, wherein the calculating unit is adapted to determine the first spectrum of the predetermined reference state by averaging a plurality of measurements across the specimen to approximate a stress-free state for the specimen.

46. (currently amended) The system as claimed in claim 45, wherein the irradiating unit is adapted to direct the electron beam to enable a plurality of measurements representative of an area of the specimen which is approximately 100 times as large or larger than the predetermined measurement position.

47. (currently amended) The system as claimed in claim 44, further including a stress force applying unit wherein the predetermined reference state is determined by measuring the first spectrum with the measuring unit while exerting a stress force on the specimen of a predetermined value with the stress force applying unit and by measuring the second spectrum with the measuring unit at the predetermined measurement position measured without exerting the stress force.

48. (currently amended) The system as claimed in claim 47, wherein the stress force of the stress force applying unit is applied mechanically to the specimen.

49. (currently amended) The system as claimed in claim 47, wherein the stress force of the stress force applying unit is applied thermally to the specimen.

50. (currently amended) The system as claimed in claim 47, wherein the predetermined reference state is measured by the measuring unit over a plurality of different stress forces exerted by the stress force applying unit to correlate the amount of external force and the corresponding spectrum shift.

51-53. (canceled)

54. (currently amended) The system as claimed in claim 44, further including a composition analyzing unit that determines the composition of the specimen and that adjusts the calculated stress calculated by the calculating unit on the basis of the determined composition relative to a predetermined composition standard for the specimen.

55. (currently amended) The system as claimed in claim 44, further including a temperature control unit for controlling the temperature of the specimen during the measurement by the measuring unit to a predetermined temperature.

56. (currently amended) The system as claimed in claim 44, further including a light radiating unit that illuminates the specimen with light and a light measuring unit for measuring radiation from the specimen after contact with the light radiation to provide a peak reference for compensation of the electron beam calculated stress by the calculating unit.

57. (currently amended) The system as claimed in claim 44, wherein said irradiating unit irradiates the predetermined measurement position by an electron beam having a diameter of 10 nm or less.